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VISIT OF INDIAN DEANS OF AGRICULTURE
TO U.S. LAND-GRANT UNIVERSITIES

January 19 to February 8, 1986

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SUMMARY

This report covers the visit of eight deans from agricultural universities in India, under the leadership of Dr. Maharaj Singh, Deputy Director General (Education), Indian Council of Agricultural Research (ICAR), to land-grant universities in the United States from January 19 through February 8, 1986. The invitation for the visit was from the Board for International Food and Agricultural Development (BIFAD). The visit was funded by the United States Agency for International Development (USAID) in New Delhi and organized by AID/Washington and BIFAD with assistance from Winrock International. It was a follow-up to the visit to India in 1984 by deans of agriculture from the six land-grant universities in the U.S., which had worked with Indian agricultural universities during their formative years in the 1960's (Pennsylvania State University, The Ohio State University, University of Tennessee, University of Illinois, University of Missouri, and Kansas State University).

The purposes of the visit, as indicated by Mr. M. Peter McPherson's letter of welcome, were to:

- o examine the current status of U.S. agricultural education, research and extension staffing, facilities and programs;
- o strengthen Indo-U.S. agricultural university ties which were established (with assistance from AID) in the 1960's;
- o acquaint U.S. counterparts with India's outstanding achievements in agricultural research and food production;
- o exchange viewpoints on changes and challenges which shape the agenda and developmental needs of Indian and U.S. agricultural education institutions as they move into the 21st century; and
- o identify possible areas for future collaboration in human resources development for agricultural education, research and extension.

Members of the Indian delegation were:

- Dr. Maharaj Singh, Deputy Director General (Education), ICAR
- Dr. R. P. Chaudhary, Dean, College of Agriculture, GB Pant University of Agriculture and Technology, Pantnagar
- Dr. T. S. Khuspe, Director of Extension Education, Mahatma Phule Krishi Vishwa Vidyalaya, Rahuri
- Dr. B. S. Malik, Dean, Faculty of Veterinary Health, Jawaharlal Nehru Krishi Vishwa Vidyalaya, Jabalpur
- Dr. Harihar Nath Mehrotra, Dean, College of Agriculture and Head of the Plant Breeding and Genetics Department, Mohan Lal Sukhadia University, Udaipur
- Dr. Anirudha Misra, Dean, College of Agriculture, Orissa University of Agriculture and Technology, Bhubaneswar
- Dr. P. Pushpama, Dean, Faculty of Home Science, Andhra Pradesh Agricultural University, Hyderabad
- Dr. H. P. C. Shetty, Dean, College of Fisheries, University of Agricultural Sciences, Bangalore
- Dr. S. R. Verma, Dean, College of Agricultural Engineering, Punjab Agricultural University, Ludhiana.

The institutions represented by the deans have all had previous relationships with the land-grant institutions listed above. All but two members of the Indian delegation had studied for advanced degrees in the United States.

Programs were organized for members of the delegation at a total of 15 land-grant universities, plus AID and the Agricultural Research Service (ARS), United States Department of Agriculture (USDA). Land-grant universities also arranged for visits to private firms engaged in production or distribution of farm inputs and/or processing farm produce, USDA research laboratories, and farms. Members of the group participated in more than 150 separate presentations and/or discussion sessions.

There was much nostalgia and friendly visiting at the universities as the Indian deans visited old surroundings and encountered former professors, friends, U.S. faculty members who had worked in India in the 1960's, and U.S. deans who visited India in 1984 as guests of the Indian government.

Deans of agriculture and their staff at the land-grant universities were enthusiastic about this opportunity to help their colleagues from India learn more about their U.S. colleges of agriculture. They demonstrated this enthusiasm by providing their guests well-planned and organized programs that provided maximum opportunity for the deans to discuss their concerns with their respective American colleagues. The guests responded with obvious interest and lots of questions. They were excited by what they saw and learned. A frequently heard expression was, "the time was too short." Both groups of deans have much in common -- common missions, common goals, common problems with quality improvement, faculty development, faculty evaluation and promotion, and modernizing educational programs to keep abreast of new developments in such areas as biotechnology and computer use -- and never enough money to do all that is needed for training students, doing research and improving agriculture.

The programs arranged for the Indian deans were comprehensive. They provided an overview of the university, the college of agriculture, faculty evaluation and promotion systems, the state agricultural experiment stations, cooperative extension, curriculum building in resident instruction, program building for research and extension, organization and operation of departments, strong program areas, interdisciplinary research teams, agricultural teacher education, modern communications systems, county extension offices, and international agricultural programs. The hosts arranged for their top people -- presidents, provosts, vice-presidents, deans, departmental heads, faculty members and county agents -- to be on the program. This helped the Indian deans make the best possible use of their time and provided them an opportunity to observe and to make initial contact with people with whom they may wish to work in the future.

The Indian deans responded to this program with much enthusiasm. Even though they may have suffered from jet-lag, a cold, or near exhaustion from the busy schedule, they always kept up with the schedule and were obviously interested. Several of their hosts were very complimentary of the deans' ability to absorb so much and maintain a high interest level.

In their concluding session the Indian deans and Dr. Singh indicated that their top priority at present is on improving education. Dr. Singh said, "... we need to make inputs into the system primarily to improve instruction and modernize curricula; not so much to add depth and breadth to the system, but to build in the capability for self growth and development." Dr. Singh indicated that they intend to establish a unit in each state agricultural university (SAU) to be concerned with the science of teaching and learning and the technology to improve teaching -- to study learning disabilities of Indian students from rural areas and help overcome them.

Other areas in which the delegation indicated great interest include:

1. improving curriculum development processes;
2. faculty administration, including teacher evaluation, promotion procedures, etc.;
3. organization of an accreditation system for agricultural education institutions and programs similar to what is practiced in the United States;
4. deeper understanding of the land-grant concept, the system, and changes over time.

New program areas in which Dr. Singh and the delegation of deans are interested include:

1. Forestry education. They have started a department of forestry in five state agricultural universities and will start a similar department in nine more later.
2. Agricultural meteorology education.
3. Biotechnology education. They want to train scientists who will teach, do research and develop the applications of biotechnology.
4. Processing and communicating information, including communication science, methods and technology.
5. Computer application education, to train students in both computer science and in the use and application of computers.

Both the Indian deans and U.S. land-grant university administrators, deans, department heads and faculty indicated strong interest in establishing closer ties for the future. This interest stems from their common mission and goals plus their desire to exchange ideas and work together to improve the capacity, efficiency and effectiveness with which they serve their immediate constituencies and their countries. This is simply a situation in which people with a dedication to a common cause want to work together to help each other and themselves. (As one example, the governing body of Pennsylvania State University has adopted a written statement of policy on this point.)

U.S. university administrators in several places said in effect, "We want our faculty to have experience in your country. It may help you solve your immediate problem. For us, it will help our faculty who return to the U.S. to teach their students more factual information about both your agriculture and your society. It will also enable our faculty to learn first-hand scientific information and techniques from leading Indian scientists and scholars."

From the closing remarks of the Indian deans, it would appear that they picked up some concepts and ideas which they will put to work immediately to keep improving their own institutions. They will apparently be trying to find means to develop closer ties with people and programs in the land-grant universities. And, if the warmth and collegiality with which they were received in U.S. universities is a fair indicator, U.S. land-grant colleges will place a high value on such ties.

SUMMARY OF POINTS MADE BY DR. MAHARAJ SINGH AND THE DELEGATION OF DEANS
Closing Session, February 7, 1986

1. Emphasis of the delegation is on improving education in the Indian agricultural universities. Dr. Maharaj Singh pointed out that the National Agricultural Research Project and National Agricultural Extension Project are being implemented to improve these two functions of the SAUs. He said "...we need to make inputs into the system to improve instruction, not so much to develop more depth and breadth, but to build in the capability for self growth and development."
2. Faculty development is a serious concern. Dr. Singh observed that some U.S. colleges have established centers providing expert services to improve the teaching/learning capabilities of faculty members and students. "We are going to establish such a unit to begin with" he said. This unit will also be charged with the responsibility of studying the learning disabilities of students who come from rural areas and designing ways to overcome them.
3. Curriculum development capability is an important area needing improvement. Dr. Singh said, "It is crucial that we develop in our faculties the ability to design and develop new curricula in response to the needs of the time." Dr. Mehrotra said, "It is heartening to see how expeditiously you change your curriculum."
4. Faculty administration is an area of much interest to the deans. With regard to teaching, Dr. Misra said, "Our problems in India concerning the organization and administration aspects of education need immediate attention."

There was much interest in:

- o Evaluation of teachers, with annual self-analysis and evaluation by students, peers and the department head.
 - o The system of rewarding good teaching and promotions.
 - o Responsibilities and functions of the department head in advising and counselling teachers and in encouraging changes in the curriculum.
5. New programs. It was pointed out by Dr. Singh and the delegation that new programs were needed in:
 - o Forestry Education. We have started a department of forestry in five SAUs this year and will start in nine more later.
 - o Agricultural Meteorology. In our curricula we devote a lot of time to the study of soils and plants but not much time is spent on agrometeorology.
 - o Biotechnology. We want to establish in our state agricultural universities facilities and programs for instruction and research to train people in the various aspects of biotechnology. This may be in the form of a center, or integrated into the structure of relevant subject matter departments.

- o Processing and Communicating Information. We need to develop information sciences/technologies as well as the communications system. This may be linked with the university library.
 - o Instrumentation. We have to establish facilities and programs in our SAUs for instruction in the use of computers and modern scientific instrumentations. Unless we establish this, our graduates will be working under a handicap.
6. Establishment of effective programs of accreditation of institutions and academic programs is a real need. Dr. Singh said, "Our ideas in this respect fit well with what you are doing in your land-grant institutions. This will help in the orderly and rational development of our SAUs. It provides incentive for self improvement and helps administrators see where new investments need to be made."
7. Deeper study and understanding of the land-grant system itself and its evolution over time is needed. Dr. Singh indicated a need to better understand the scope and mechanisms of integration of the teaching, research and extension functions in the land-grant system. He also expressed a need for careful study of the changes which have taken place in the land-grant system in USA in order to better prepare for the changes which will need to be made in the SAUs in India over time.

OBSERVATION AND COMMENTS

by

Indian Delegation of Deans of Agriculture

Visit to the United States

Closing Session

February 7, 1986

Dr. Maharaj Singh

Deputy Director General (Education), ICAR

Leader of the Delegation

No words are adequate to express our gratitude for your affection and hospitality.

I would like to provide you some background on the objectives of our visit.

When our first 8 agricultural universities were established, we picked up only a part of the land-grant system at that time. Then we established the other 15. Much of the development effort was done at the main campus. The universities did not have adequate infrastructure to serve their hinterlands.

Later, we formulated the National Agricultural Research Project to strengthen the regional research capabilities of our state agricultural universities. Under this project, we conducted detailed research reviews in each state, identified specific agroclimatic/farming systems zones and prepared plans to establish a multi-disciplinary zonal research station under the respective SAU to serve each agroclimatic zone. Now we have 127 agroclimatic zones covering the whole of the country. By the end of 1992 we will have the entire system of 127 zonal research stations (ZRS) established and functioning in the various states of the country.

We have also formulated a National Agricultural Extension Project to link up extension at the farm level with the zonal research stations so that SAU scientists at the zonal research stations will be in direct communication with the functionaries of the various departments of the state government responsible for agricultural development in the service of the ZRS down to the village level extension workers.

Thus the research and extension education functions of the SAU have been receiving considerable attention, but the third function, education, has been left somewhat behind. Several aspects of the education function need urgent attention. Most of our students come from a rural background where the parents are often uneducated and the school system poorly developed. The students usually have a variety of deficiencies in learning, reading comprehension, writing and speech, etc. Many of these students, through hard work, come up to staff the faculty.

The faculty trained in the U.S. during the sixties are thinning out and being replaced by young faculty often deficient in these skills. So, we need to make inputs into the system primarily to improve instruction and modernize curricula, not so much to add depth and breadth to the system, but to build in the capability for self growth and development.

It is crucial that we develop the ability to design and develop new curricula and to improve the quality of instruction, making full use of developments in the field of educational science and technology.

I find there is quite a diversity in your land-grant universities in the use of educational science and technology for improving instruction in professional colleges. Some either don't think much of it or simply don't apply it. Others do. In some universities there are teaching/learning centers providing expert services to teachers/students for effective teaching/learning.

We are establishing such a unit at the National Academy for Agricultural Research Management, Hyderabad and want to establish similar units in all the state agricultural universities.

New programs we include:

1. Forestry Education. We have established a department of forestry in five SAUs and will do so in nine more SAUs later.
2. Agricultural Meteorology. Presently we are spending a lot of effort on the study of soils and plants but not much on agricultural meteorology.
3. Biotechnology. We want to establish educational and research facilities and programs in our universities in various aspects of biotechnology.
4. Processing and Communicating Information. We need to develop information sciences and technology as well as the communications system.
5. Instrumentation. We want to establish facilities and programs in the use of computers and modern scientific instrumentation.
6. Accreditation of Institutions and Programs. Our idea fits well with what you are doing in your land-grant institutions. This will help in the development of our system. It provides incentive for self-improvement and helps administrators see where new investments need to be made.
7. We need to make a deeper study of your land-grant university system and its evolution over time in response to the progressive development of your economy and society.

We feel it would be useful to establish some linkage between our Association of State Agricultural Universities and the National Association of Land-Grant Universities. A deeper study of the land-grant university system and its evolution over time, which has taken place in your system, can help us in anticipating and introducing necessary changes in our SAU system to make it more responsive to new emerging needs.

Dr. R. P. Chaudhary

Dean, College of Agriculture

G.B. Pant University of Agriculture and Technology, Pantnagar.

I was at Michigan and the University of Illinois for graduate work; however, at that time, I did not learn much about the system of education in the U.S. On this trip, at the University of Tennessee, University of Illinois, Kansas State University, University of Arizona, and University of California (Riverside), we found tremendous changes in undergraduate education. We feel that a system of evaluation of undergraduate teachers is working in the U.S. and we want to introduce it in India. At Pantnager, we have not done this so far. We have made some changes at the graduate level, but not at the undergraduate level.

I saw here how the system of extension works right from the university to the county agent.

In research we were impressed by your use of biotechnology for improving crop production and in veterinary medicine. At Illinois, we saw very impressive herbicide and pesticide research. We saw computer based linkage for whole systems in several places.

Dr. T. S. Khuspe

Director of Extension Education

Mahatma Phule Krishi Vishwa Vidyalaya, Rahuri.

This is my first visit to the United States. In India I was the first student in extension education at IARI when the curriculum was started in 1960-61. I see that extension education here is pursued by extension specialists in biological sciences, etc. In India, we offer the MS or Ph.D. in extension education. We need to strengthen our extension education curriculum with subject matter content in crop and livestock production. At Penn State and Kansas State Universities I was happy to see that teaching of extension education is closely related to the curriculum in agriculture.

Communications is a vital area to me and my countrymen. We hope more attention can be devoted to this in building the system of agricultural education in India.

At Penn State University we saw a very fine center for remote sensing. We also saw a soil testing lab to which farmers send their soil samples for testing.

Kansas is certainly a wheat state. There they attack research and education problems for wheat production from many angles. In the College of Human Ecology there, food and nutrition and the social sciences are given a lot of importance. They are putting increased emphasis on sociology and psychology.

In India we need to work on extension as an educational system for farmers as well as a system for transfer of technology.

In Pullman, Washington, we saw the Palouse wheat production county. A private fertilizer firm there conducts soil fertility research on wheat production.

In conclusion, agricultural education and communications are areas we need to expand in India.

(Chairman Hinish observed that in the U.S., we feel that research does not end until it is applied.)

Dr. B. S. Malik
Dean, Faculty of Veterinary Health
Jawaharlal Nehru Krishi Vishwa Vidyalaya, Jabalpur.

I received my Ph.D. from the U.S. in 1964 and studied public health in 1971. This is my third trip to the United States. My group visited five universities -- Tennessee, Illinois, Kansas, Arizona, and California - Riverside. We were given a warm reception everywhere and saw many things at each university.

In India, our BS program has a fixed curriculum, but you have university, departmental, core and elective courses. You teach the disciplines necessary for a successful career.

In India, we need to update our curriculum. As deans, we add more courses, but they are not closely linked to the needs of the student. In the U.S. you link them.

In the U.S. you have fewer departments in a college, but we keep on adding them and we need to adopt your system. With fewer departments, administration is better.

In Illinois, we were impressed by the extension program and genetic engineering applied to veterinary medicine for disease control.

In Kansas we were impressed by dairy, beef production, and embryo transfer programs in which we are interested. They have excellent facilities.

We are deficient in the use of computers in our educational program. In the U.S. it is well developed.

Dr. H. N. Mehrotra
Dean, College of Agriculture, and Head of the Plant Breeding and Genetics Department, Mohan Lal Sukhadia University, Udaipur.

Thank you for your hospitality. This has been a good experience after a long gap. I came to the University of Illinois in 1953 for a Ph.D. as the first person in that program. There have been tremendous changes in the U.S. in the 32 years since then.

I visited The Ohio State University, University of Missouri, University of Florida, and University of California - Riverside.

We have adapted your land-grant system to our conditions. This has been a good opportunity to review your system and get ideas for change.

We were concerned about how to change our curriculum to include new information and technology. It is heartening to see how quickly you change your curriculum.

Your teacher evaluation system is interesting. It is relatively easy to evaluate researchers, but hard to evaluate teaching and extension faculty. In our country, research gets higher priority than teaching and extension. In the U.S. you recognize teaching accomplishments at all levels.

The flexibility in your system is of great significance. It is a goal which we must try to achieve.

If we are to go successfully into the 21st century, we have to enhance the use of biotechnology and computers. We must use computers to share knowledge with others, if nothing else. We need to share and exchange information country-to-country.

Forestry is important. Your use of the term "natural resources" gives "forestry" a broader base. We, too, need to consider forestry in a broader sense.

The integrated manner in which problems are solved in the U.S. is also important. Individual teachers in Missouri were voluntarily working together as a team. This is important for bringing the disciplines together and making them more productive.

In extension, your system has the same job as ours. But in India only 30+% of the new technology is adopted. We must have more effective extension to disseminate the results of research. At the University of Florida we saw the "farming systems" approach. In our case there is a big gap between farmers who have adequate resources and the farmers who have very little. We need to tune our system to meet the needs of the resource poor farmer.

Our past cooperation (U.S. and India) and the benefits we have shared, suggests that we work together. It is important to both of us to bring our society to a higher level.

Dr. A. Misra

Dean, College of Agriculture

Orissa University of Agriculture and Technology, Bhubaneswar.

We looked at the teaching aspect. Our problems in India concerning the organization and administration aspects of education need attention. I saw here a great deal of the democratic approach. U.S. university presidents are assisted by faculty senates, faculty committees, dean's committees, etc.

In each state we saw the prominence of the department chairman in advising and counselling teachers and in encouraging changes in curriculum. In your curriculum, you introduce new courses if needed by industry (agribusiness).

Evaluation of teachers, annual self-analysis and evaluation by the department head, students and peers is very much needed in India. I was impressed by your communication with students. The freedom of students to choose is notable.

Your dialog between research, private industry and farmers is very good. They advise each other on an annual basis.

Concerning research, there is a lot of emphasis in your system on biotechnology and use of computers for both teaching and research. We saw comprehensive computerized monitoring of greenhouses at the University of California - Riverside. You have much sophistication in your equipment. Many gadgets make your research efficient. Much fundamental work has been done. We must adapt it to our conditions. Our systems have not gone forward to this extent. A collaborative project in this regard would be very useful.

U.S. farmers are very innovative. We visited some farms and were very impressed by the extent to which they have advanced in respect of mechanization, specialization and management.

In Ohio, extension specialists (county agents) have computers in the county offices.

Dr. P. Pushpama

Dean, Faculty of Home Science

Andhra Pradesh Agricultural University, Hyderabad.

I thank you and your universities for your warm welcome and hospitality. I have learned so much about your universities, even the Kansas State University where I spent five years. I had been under the impression that I knew all about your universities!

I noticed a tremendous change in your undergraduate teaching from focus on technology to the development of the whole personality and capability of the student. You are putting more emphasis on social science as well as the basic sciences.

Penn State had a very systematic approach to correcting writing and communications deficiencies in students.

When I was here as a student I had no opportunity to learn about such things as faculty improvement. But this time we saw academic administration in action and we were pleased. Your system of incentives to faculty and your evaluation system are truly commendable.

Concerning computers, we note that they may not replace the teachers, but they certainly make them more efficient, e.g. through computer assisted teaching.

In home economics, you are emphasizing the welfare of the whole family and the community. Also, home economics students are receiving more training in professionalism, family living and family resource management. You have broadened the curriculum in both home economics and agriculture.

We will spell out areas for future collaboration at a later time.

Dr. H. P. Shetty
Dean, College of Fisheries
University of Agricultural Sciences, Bangalore

This is my first visit to the United States. Like a frog in a well, I may have been thinking that everything I was doing was important. It was gratifying to visit your fisheries scientists and know their programs. We had an opportunity to get insights into the pros and cons of many things.

In all areas -- research, teaching and extension -- the problems we face in India are essentially the same as you are facing here. I heard your scientists saying, "Our problems are the same. If you know the answers, let us know."

I saw both fish research and processing (scientific, sanitary, efficient, with good instrumentation). Your programs in biotechnology and computers are very impressive. At all places I saw many good things. Even with our limitations in India, I see many possibilities.

I look forward to collaborating with your universities in the future. Dr. Faulkner at LSU said, "We can sit down right now and draw up a plan for collaboration."

With regard to fisheries, I saw many things. At the Oak Ridge Lab I found a system of electronic tagging of fish. We are emphasizing fish diseases, genetics and nutrition. In fish microbiology, scientists at Auburn and Maryland are already collaborating with us.

Your fishery scientists are achieving great efficiency in conversion of feed to fish.

In Tuscon, I was gratified to see systematic study of fish and prawn diseases, genetics and breeding.

I was happy and surprised to see the quality of your research and extension programs.

I would like to send our people here for training -- 3 months, 6 months.

Thank you for allowing me this opportunity.

Dr. S. R. Verma
Dean, College of Agricultural Engineering
Punjab Agricultural University, Ludhiana.

I would like to express my gratitude to all the concerned people in the U.S. and India for making excellent arrangements and the many courtesies of this trip.

Prior to 1960, there were only two agricultural engineering colleges in India. Today we have 14 or 15 institutions offering BS degrees and several are offering MS and Ph.D. programs. Agricultural engineering is important in all phases of food production and processing in India.

My visits were to The Ohio State University, University of Missouri, University of Florida and University of California at Riverside. I endorse the observations of my colleagues.

In five or six areas, we observed tremendous progress. The sooner we make a start in biotechnology training, the better it will be. Computers are used in industry for controlling processes. Their use in information dissemination and communication will expand. All Indian agricultural universities need to increase courses in computer application, software development, etc. -- to cater to the needs of plant scientists, engineers and graduate students. There is no escape!

The threshing machine was developed in India in 1956, but there are still some areas in which it is not used. As with the thresher, we must start the use of computers now, and let them develop.

Teaching programs must be developed in computer use and application. We could use help in this area from the United States.

Regarding computer aided design, commercial firms are asking our agricultural engineering colleges to train their personnel.

The rate of obsolescence in measurement systems based on computers is astonishingly high. We have to train our people in use and maintenance of electronic equipment on a wide scale.

In India, we may have too much compartmentalization, i.e. too many departments. We need to develop more interdisciplinary programs. I was impressed by crop modeling and simulation programs at The Ohio State University (Wooster) and the University of Florida. As this becomes more complex and sophisticated, we can increase our effectiveness by using computers.

Conservation tillage is an important area where we can reduce the use of energy in crop production. Anything we can do to cut down work on seedbed preparation will be helpful.

Regarding food processing, and storage and handling of vegetables, I saw good projects at The Ohio State University in the Department of Agricultural Engineering. In India we need to expand food engineering. This is one area in which we can collaborate with the United States.

Another well developed area in the United States is Greenhouse Engineering (at Wooster, Ohio, Missouri and University of California - Riverside).

We ought to train our people in the use of microprocessors, micro-controls, the engineering aspects of forestry, water management, etc. All these need more emphasis.

On farms, management of water seems to be a number one responsibility. It is important that we learn more about efficient use of water through new application methods, such as the micro-sprinklers we saw in a California fruit farm.

INVITATION FOR THE VISIT

On April 12, 1985, Dr. E. T. York, Jr., Chairman, Board for International Food and Agriculture Development (BIFAD), sent a letter to His Excellency, K. Shankar Bajpai, Ambassador of India to the United States, inviting "a delegation representing agricultural research and education from India to visit the United States as guests of the U.S. land-grant university community." (Attachment 1). Dr. York said, "Such a visit would provide the Indian delegation an opportunity to visit with representative agricultural research and education institutions and explore areas of mutual interest." The invitation was extended in reciprocation for the visit of deans of agriculture from six U.S. land-grant universities, as guests of the Government of India, in November 1984. The six U.S. universities participating in the 1984 visit of U.S. deans were those which had worked with India in development of the Indian agricultural universities. They were: The University of Illinois, Kansas State University, University of Missouri, The Ohio State University, University of Pennsylvania and University of Tennessee.

ACCEPTANCE OF THE INVITATION

In December 1985, the Government of India accepted the invitation extended by BIFAD. All travel, per diem and operating costs of the India team were funded by USAID. U.S. universities funded part of the costs of local travel as well as special meals for the delegation.

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MEMBERS OF THE INDIAN DELEGATION

Members of the delegation of Indian deans included:

- Dr. Maharaj Singh, Deputy Director General (Education), Indian Council for Agricultural Research (ICAR), leader of the delegation.
- Dr. R. P. Chaudhary, Dean, College of Agriculture, GB Pant University of Agriculture and Technology, Pantnagar.
- Dr. T. S. Khuspe, Director of Extension Education, Mahatma Phule Krishi Vishwa Vidyalaya, Rahuri.
- Dr. B. S. Malik, Dean, Faculty of Veterinary Health, Jawaharlal Nehru Krishi Vishwa Vidyalaya, Jabalpur.
- Dr. Harihar Nath Mehrotra, Dean, College of Agriculture, and Head of the Plant Breeding and Genetics Department, Mohan Lal Sukhadia University, Udaipur.
- Dr. Anirudha Misra, Dean, College of Agriculture, Orissa University of Agriculture and Technology, Bhubaneswar.
- Dr. P. Pushpama, Dean, Faculty of Home Science, Andhra Pradesh Agricultural University, Hyderabad.
- Dr. H. P. C. Shetty, Dean, College of Fisheries, University of Agricultural Sciences, Bangalore, (Mangalore campus).
- Dr. S. R. Verma, Dean, College of Agricultural Engineering, Punjab Agricultural University, Ludhiana.

All the members of the delegation were from institutions which had had earlier formal relationships with the six U.S. land-grant universities listed above. Many members of the delegation had either received advanced degrees or studied at these U.S. universities. Consequently their ties were personal as well as institutional.

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WELCOME TO THE DELEGATION

The delegation of Indian deans arrived in Washington, DC on January 19, 1986.

Upon arrival they were presented official welcomes by Mr. Peter McPherson, Administrator, USAID; Dr. Orville Bentley, Assistant Secretary of Agriculture for Science and Education, USDA; and Dr. E. T. York, Chairman, BIFAD (Attachments 2, 3 and 4).

Mr. McPherson's welcoming letter summarizes the mission, method and opportunity of the visit as follows:

"The itinerary which has been worked out will take you to a wide variety of American agricultural universities, and to public and private sector agricultural research institutions. We hope this will provide opportunities to:

- examine the current status of U.S. agricultural education, research and extension staffing, facilities and programs;
- strengthen Indo-U.S. agricultural university ties which were established (with assistance from A.I.D.) in the 1960's;
- acquaint your U.S. counterparts with India's outstanding achievements in agricultural research and food production;
- exchange viewpoints on changes and challenges which shape the agenda and developmental needs of Indian and U.S. agricultural education institutions, as they move into the 21st century; and
- identify possible areas for future collaboration in human resources development for agricultural education, research and extension."

The Indian Ambassador to the United States, His Excellency K. Shankar Bajpai, hosted the Indian delegation and guests from USAID and BIFAD to a delightful reception on the evening of February 20. The reception was arranged by Mr. S. P. Biswas, Economic Counselor.

Briefing materials provided the delegation included:

1. Board for International Food and Agricultural Development (BIFAD). 1983. A Guide to Title XII and BIFAD. BIFAD, United States Agency for International Development, Washington, DC 20523.
2. Dunbar, John O. 1985. How the Universities Present Their Case to the Public and the Federal Government. College of Agriculture, Kansas State University, Manhattan, KS 66506.

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3. Indo/U.S. Subcommittee on Agriculture. 1985. Report of the Fourth Meeting. United States Department of Agriculture, Washington, DC 20250.
4. Joint Council on Food and Agricultural Sciences. 1984. Summary: Needs Assessment for the Food and Agricultural Sciences, A Report to the Congress from the Secretary of Agriculture. United States Department of Agriculture, Washington, DC 20250.
5. Mugler, David J. 1985. Fall 1984 Enrollment Report in Colleges of Agriculture of the Member Institutions of the National Association of State Universities and Land-Grant Colleges. Division of Agriculture, National Association of State and Land-Grant Colleges, 1 Dupont Circle, NW, Suite 710, Washington, DC 20036.
6. Office of Grants and Program Systems. 1985. Higher Education Faculty in the Food and Agricultural Sciences; Agriculture, Natural Resources, and Forestry; A National Resource. United States Department of Agriculture, Washington, DC 20250.
7. Witt, Stephen C. 1985. Biotechnology and Genetic Diversity. California Agricultural Lands Project, 227 Clayton Street, San Francisco, CA 94117.
8. Joint Committee of the United States Department of Agriculture (USDA) and National Association of State Universities and Land-Grant Colleges (NASULGC). 1983. Extension in the 80's. Cooperative Extension Service, University of Wisconsin, Madison, WI 53706.

HELPING U.S. UNIVERSITIES PREPARE FOR THE VISIT

To help U.S. land-grant universities organize and conduct programs of greatest value to the Indian deans, BIFAD sent them a letter outlining the background and purpose of the visit. They were also sent a briefing paper "Perspectives on Indian Agricultural Universities." The paper included information on:

1. introduction for the Indian dean's visit,
2. teaching programs to develop agricultural manpower in India,
3. the Indian agricultural research system, and
4. the Indian agricultural extension system.

In addition, they were sent a suggested list of topics for use in organizing the visit to their state. (See Attachments 5, 6 and 7.)

Winrock International arranged a day of briefing and discussion for representatives of U.S. universities to help them prepare their programs.

SPECIAL INTERESTS OF INDIAN DEANS

The Indian deans had areas of special interest which they wished to pursue. Among them were:

1. forestry colleges, Dr. Maharaj Singh;
2. agricultural education programs, in addition to the programs in production agriculture and agricultural economics, Drs. Pushpama and Khuspe;
3. science and technology research management, Drs. Pushpama and Khuspe;
4. home economics, Dr. Pushpama;
5. agricultural extension, Dr. Khuspe,
6. an institution with a strong program in inland fisheries, Dr. Shetty;
7. an institution with a strong program in biotechnology, Drs. Malik, Verma and Mehrotra;
8. an institution with a strong program in seed technology, Drs. Malik, Verma and Mehrotra;
9. an institution with a strong program in post harvest handling of fruits and vegetables, Drs. Malik, Verma and Mehrotra;
10. an institution with a strong program in animal production and health; and
11. an institution with a strong program in communications, both written and electronic, Dr. Chaudhary.

It was possible to accommodate all these requests at one or more of the universities visited. (See Attachment 8 for individual itineraries.)

PROGRAM IN BRIEF

Visits to the States

The formal schedule developed for the Indian deans and Dr. Maharaj Singh took them to land-grant universities in fifteen states. They visited twelve colleges of agriculture, three schools of forestry and several colleges of veterinary medicine and home economics. Six of these colleges of agriculture were those which had collaborated with Indian agricultural universities in the 1960's. Visits to three schools of forestry were arranged especially for Dr. Maharaj Singh. Visits to two land-grant colleges were arranged especially for Dr. H.P.C. Shetty.

Within the states the delegates visited not only the land-grant universities, but also several laboratories of the Agricultural Research Service, USDA, a few private research laboratories, agribusiness firms and quite a few farms. In Pennsylvania, one group attended the annual meeting of a group of farmers organized into a privately operated "Crop Improvement Association."

Specific Site Visits

Dr. Maharaj Singh - five universities including North Carolina State University, University of Illinois, University of Idaho, Oregon State University, and University of California, Riverside.

Dr. H. P. C. Shetty - five universities including University of Tennessee, Auburn University, Louisiana State University, University of Arizona, and University of California, Riverside.

Drs. T. S. Khuspe and P. Pushpama - four universities, including Pennsylvania State University, Kansas State University, Washington State University, and University of California, Riverside.

Drs. R. P. Chaudhary and B. S. Malik - five universities including University of Tennessee, University of Illinois, Kansas State University, University of Arizona and University of California, Riverside.

Drs. H. N. Mehrotra, A. Misra and S. R. Verma - four universities including The Ohio State University, University of Missouri, University of Florida, and University of California, Riverside.

Programs at USAID, State Department and USDA

Upon their return to Washington, DC, the total group visited the Agricultural Research Service Laboratories at Beltsville, MD, the U.S. Department of State and the U.S. Department of Agriculture. (See Attachment 9.)

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PROGRAMS AT THE LAND-GRANT UNIVERSITY
COLLEGES OF AGRICULTURE, USDA AND USAID

The Indian deans and Dr. Singh were warmly and enthusiastically welcomed at each university they visited, those which had not had programs in India as well as those which had. They were feted at numerous receptions, luncheons and dinners with university administrators, deans, department heads, friends and faculty who had worked in India during the 1960's.

Without exception, the universities had planned a substantive program designed to make full and profitable use of the Indian deans' time. Often, at the request of Indian deans, changes were made so they could spend more time on their special interests. In total, it is estimated that they participated in over 150 formally organized sessions, plus many more which they arranged with their former colleagues and acquaintances.

Visits at the universities lasted from one to three days. While most of them were in colleges of agriculture, they also included schools of forestry, veterinary medicine and home economics.

As requested, the universities arranged many visits with farmers and private industry (research laboratories, fertilizer dealers, suppliers of insects for biological control, American Institute of Baking, fish processors, farm machinery dealers). They also included visits to agricultural research and service laboratories of the USDA in several states.

For the university visits, the Indian deans were divided into three basic groups of two or three people each, with separate itineraries. Special visits were arranged for Drs. Singh and Shetty. This made it possible for every dean to have much more individual discussion, raise more questions, and get more answers at each session than if they had all been in a single group for the tour. They appreciated this opportunity and took full advantage of it.

Taking the Indian deans to several universities made it possible for them to observe and compare similarities and differences among the universities and to get acquainted with the widest possible variety of outstanding and unique programs. The replication helped them to get a more complete, indepth picture of the main features of the land-grant colleges of agriculture.

People at the various universities observed that the Indian deans were extremely enthusiastic, excited about what they were seeing and hearing, and very able and perceptive. Some said that they too benefited from the dialog. There never seemed to be enough time. One Indian dean said, "When I saw that the program at one university was for three days, I wondered what I would do with all that time. But when the visit ended, I found that the time was too short, not too long."

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Except where it was impossible, universities made their top personnel available to visit with the deans. They included visits with:

- o President, provost and/or vice presidents - to discuss university philosophy, organization, operation and international programs.
- o Deans of agriculture - to discuss how the college of agriculture is organized to carry out the three separate but interrelated functions, and answer questions. One U.S. dean presented an outstanding blackboard lecture of the structure, organization, policies, operation, interrelationships within the college, and relationships with the other colleges in the university and the university system. He was very open and forthright in his discussion of problems, limitations and constraints of his college. The Indian deans expressed both their admiration and appreciation. They could relate to this situation.

Repeated discussions such as this provided special insight into the U.S. land-grant colleges of agriculture, which the Indian deans expressed in their observations at the conclusion of their visit. Deans of colleges of home economics, veterinary medicine and forestry were also involved.

- o Directors of resident instruction - to discuss curricula, enrollment trends, changing characteristics of students, core courses, electives, how the curriculum is modified and improved, faculty organization, evaluation of teaching faculty and promotion system.

Indian deans were especially interested in the science of learning and new technology used to assist teachers of undergraduate students. They were also interested in communications training programs.

- o Directors of agricultural experiment stations - to discuss organization of the station, branch stations and experimental fields; joint research/teaching or research/extension appointments, sources of funding, research emphasis and relationships of agricultural experiment station with private industry and USDA research.

Indian deans were interested especially in education and training of students for biotechnology research.

- o Directors of extension - to discuss the organization of subject matter specialists, county agents and volunteer workers; relationships of the extension staff with others in subject matter departments at the university; preparation and use of publications; use of radio, TV and computers in conducting extension programs; and use of on-farm trials and demonstrations at the local level.

Indian deans asked about relationships with the state departments of agriculture, county agents supplying farmers with inputs, extension education at the university level (the science of extension methodology training in subject matter) and communications.

- o Directors of international programs at the university and college of agriculture level - to discuss international agriculture commitment, and various arrangements for collaboration such as memoranda of understanding, etc.
- o Area and district directors of extension - to explain finance, organization, administration, and program development and management of extension personnel in cooperation with county governments, which finance most of the extension costs at the county level.
- o County agents - to explain how they work with local leaders and others in conducting educational programs for farmers, homemakers, 4H Club members and community leaders.
- o Department heads - to discuss programs of the department, departmental organization, staffing, financing, curriculum development, functions of the department head, the changing background and educational needs of students for successful careers, what students do after graduation; and to see buildings, laboratories, greenhouses, other facilities, special equipment and computers.

Indian deans asked questions about improvement of faculty, faculty exchanges, evaluation and promotion.

- o Faculty leaders of special programs in which the college has developed unique strength - to provide in-depth understanding of the program, how the program and its faculty are administered, how interdisciplinary work takes place, how high cost of special equipment is shared among scientists.

Indian deans were especially interested in these programs because it provided them an opportunity to identify:

1. Subject matter areas which they might wish to expand in their agricultural universities.
2. Outstanding faculty whom they would like to have come to India for lectures or workshops, or as visiting professors.
3. Outstanding faculty to whose laboratories they would like to send their own faculty for 3 months, 6 months or a year -- or for post-doctoral work.

Some examples of such programs were:

- o Foodscience at Pennsylvania State University
- o Science and technology of learning at Arizona State University
- o Wheat research at Kansas State University
- o Animal disease basic research at the University of Illinois

A special program was organized to provide the Indian deans an opportunity to get a birds-eye view of research conducted directly by the USDA in relation to what they had seen at the land-grant universities, i.e. by the other public partner. This program consisted of a tour of ARS research facilities at Beltsville, Maryland; a discussion of the problems and potentials of biotechnology; and an overview of the USDA agricultural research service functions, organization and management. Dr. Mary Carter, Deputy Administrator, ARS, presented the overview. The Indian deans were interested to see this half of the public U.S. agricultural research partnership. It corresponds to their situation in India where agriculture research is done by both state universities and ICAR.

As a sort of grand finale for the tour, AID organized a program on Scientific Agricultural Manpower Development, Research and Extension for the 21st Century. This program was held in the U.S. Department of State. It was designed to provide the Indian deans a clear picture of what USAID and land-grant university leaders see as the needs and opportunities for research, teaching and extension as we approach the year 2000 and beyond. This provided them a back-drop against which they could project needs and opportunities they face in their own institutions. Participants in this program were:

Dr. Nyle Brady, Senior Assistant Administrator, Bureau for Science and Technology, USAID (see Attachment 11).

Dr. Neville Clarke - Director, Texas Agricultural Experiment Station and former Chairman of the Land-Grant Association Experiment Station Committee on Policy.

Dr. Ken Riesch, Associate Dean for Instruction, College of Agriculture, The Ohio State University, and current Chairman of the Land-Grant Association, Resident Instruction Committee on Policy.

Dr. William Oswald, Director, Cooperative Extension Service, Illinois.

Dr. Duane Acker, President, Kansas State University.

(Please see Attachment 9.)

Special Note

Each university presented the visitors with a large variety of handout materials, all the way from a single page outline to university catalogs and books. It is impossible to include this whole stack of materials in this report, even for one of the universities. It may be noted that each of the Indian deans took home a large packet of material from each university they visited.

LAND-GRANT UNIVERSITIES COMMITMENT
TO INTERNATIONAL AGRICULTURE

All the land-grant universities visited have a strong commitment to international agriculture. This commitment stems from the belief that faculty members who have foreign experience become better teachers. It increases their base of knowledge and stimulates them to teach students about agriculture in other countries as well as the United States. Administrators know the importance of this experience and encourage and reward it.

At Pennsylvania State University, the University Board of Trustees, in January 1980, reconfirmed that, "A strengthened university-wide international dimension in agriculture is essential." Rather than remain rhetorical, decisions have been made to strengthen the international commitment of the University. Penn State created the new position of Deputy Vice President for International Programs and appointed Dr. W. LaMarr Kopp to this position. The President of the University has also appointed an International Council, with one member from each College, to increase the visibility and direction of the international activities of the University. The Director of the Office of International Agricultural Programs serves as the representative of the College of Agriculture on the International Council.

Additional actions which serve as useful indicators of the University's interest in supporting international activities include:

a. Promotion and tenure regulations at Penn State stress the need for evaluating the performance of faculty members within the scope and mission of their assignment. The intent of University policy is that performance of duties rather than location of duty station is the relevant evaluation criteria for promotion and tenure.

b. Commitment to international agricultural programs is shown by the College of Agriculture's policy concerning salary savings. The current policy is to return all salary savings generated through an international agricultural assignment back to the individual faculty member's department.

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BOARD FOR INTERNATIONAL FOOD AND AGRICULTURAL DEVELOPMENT
INTERNATIONAL DEVELOPMENT COOPERATION AGENCY

Agency for International Development
Washington D.C. 20523

Bldg. 106, Mowry Rd.
University of Florida
Gainesville, FL 32611
April 12, 1985

His Excellency
K. Shankar Bajpai
Ambassador of India
2107 Massachusetts Avenue, N.W.
Washington, D. C. 20008

Dear Mr. Ambassador:

Last November I had the privilege of visiting India along with a group of leaders from the agricultural programs of six U. S. land-grant universities. These six universities were involved through the U. S. Agency for International Development (AID) in working with the Indian government in the 1950s, 1960s, and early 1970s in helping to establish or strengthen a number of agricultural universities in India.

Our delegation was invited by the Indian government to visit some of these agricultural universities and to explore with the leadership of these institutions, the Indian Council on Agricultural Research and others the possibility of renewed collaboration between agricultural universities in the two nations.

The group included the following representatives of U. S. universities:

- Dr. John R. Campbell, Dean, University of Illinois;
- Dr. John Dunbar, Dean, Kansas State University;
- Dr. Francille Firebaugh, Associate Provost, Ohio State University;
- Dr. Glen Hall, Dean, University of Tennessee;
- Dr. W. Wayne Hinish, Associate Director of Extension, Pennsylvania State University;
- Dr. Roger Mitchell, Dean, University of Missouri.

Also involved in the visit were Dr. Douglas Ensminger, former Director of the Ford Foundation program in India and Ms. Priscilla Boughton, Deputy Executive Director of the Board for International Food and Agricultural Development and former Director of the U.S.A.I.D. Mission in India. As Chairman of

His Excellency K. Shankar Bajpai
April 12, 1985
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the Board for International Food and Agricultural Development (BIFAD); I was asked to lead the delegation. BIFAD is an advisory body to U.S.A.I.D. and serves as a link between the U. S. university community and A.I.D.

On behalf of the delegation, I would like to convey our deep appreciation for the very effective planning and logistical arrangements by the government of India. This made it possible for the members of the delegation to have an opportunity to visit ten agricultural research institutes and seven agricultural universities during the limited span of twelve days. All members of the delegation were quite impressed with the quality of professional effort and evidence of significant achievement within these institutions. It was our impression that these institutions are contributing significantly to meeting India's development goals in agriculture.

During discussions with our Indian hosts there were many areas of mutual interest on both scientific and institutional matters. There seemed to be a significant level of enthusiasm among both groups about the potential for further collaboration between the agricultural institutions in our two countries.

In view of these apparent mutual interests, the U. S. delegation is proposing an invitation for a delegation representing agricultural research and education from India to visit the United States as guests of the U. S. land-grant university community. It may be possible that such a delegation could be invited in conjunction with the agricultural education and research working group of the Joint Indo-U.S. Subcommittee on Agriculture. If this is not feasible, something independent of the Joint Subcommittee could be arranged. Within this framework the possibilities for further collaboration could be explored. Such a visit would provide the Indian delegation an opportunity to visit with representative U. S. agricultural research and education institutions and explore areas of mutual interest.

In addition to this proposed visit, let me also suggest another possible opportunity for fairly immediate collaboration between the agricultural universities of our respective countries. The 25th anniversary of the G. B. Pant University of Agriculture and Technology, the first Indian agricultural university, occurs in 1985. This agricultural university collaborated with the University of Illinois during its formative years. If there is interest within the government of India in giving recognition to the agricultural universities on this occasion, I am confident that we could arrange for the University of Illinois, as well as other land-grant universities,

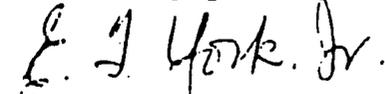
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His Excellency K. Shankar Bajpai
April 12, 1985
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to participate in an international workshop covering subjects of significance to India and the international agricultural community. I would appreciate your reaction to this suggestion.

May I reemphasize the gratitude expressed by our delegation for the many courtesies extended our group during our visit to India.

Sincerely yours,



E. T. York, Jr.
Chairman

ETY:rg

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UNITED STATES INTERNATIONAL DEVELOPMENT COOPERATION AGENCY
AGENCY FOR INTERNATIONAL DEVELOPMENT
WASHINGTON D C 20523

THE ADMINISTRATOR

TO: MEMBERS OF THE DELEGATION OF INDIAN AGRICULTURAL EDUCATORS

I am privileged to welcome you and your colleagues to the United States, and most pleased that you were able to accept our invitation to reciprocate the 1984 visit of U.S. university agricultural Deans to India.

The itinerary which has been worked out will take you to a wide variety of American agricultural universities, and to public and private sector agricultural research institutions. We hope this will provide opportunities to:

- examine the current status of U.S. agricultural education, research and extension staffing, facilities and programs;
- strengthen Indo-U.S. agricultural university ties which were established (with assistance from A.I.D.) in the 1960's;
- acquaint your U.S. counterparts with India's outstanding achievements in agricultural research and food production;
- exchange viewpoints on changes and challenges which shape the agenda and developmental needs of Indian and U.S. agricultural education institutions, as they move into the 21st century; and
- identify possible areas for future collaboration in human resources development for agricultural education, research and extension.

It is our hope that this visit will mark the beginning of a long and fruitful Indo-U.S. dialogue. I look forward with great interest to participating in this dialogue with you.


M. Peter McPherson



DEPARTMENT OF AGRICULTURE
OFFICE OF THE SECRETARY
WASHINGTON, D.C. 20250

January 15, 1986

Dr. M. P. C. Shetty
Dean
College of Fisheries
University of Agricultural Sciences
Bangalore
INDIA

Dear Dr. Shetty:

On behalf of the U.S. Department of Agriculture and its Science and Education Agencies, I am pleased to welcome you and your colleagues to the United States. We sincerely hope that your visit is both pleasant and productive and if we in the USDA can do anything to help make it more so, please do not hesitate to let us know.

The USDA greatly values its long and close association with India and your visit provides us an opportunity to strengthen those ties. The primary framework for our official bilateral ties in agriculture is the Indo-U.S. Subcommittee on Agriculture which last met in Washington in September 1985. At that time, the Subcommittee's Research and Working Group discussed the visit of a delegation from U.S. universities to India in November 1984 and enthusiastically endorsed the idea of a return visit of an Indian delegation to the U.S. I am pleased that our hope has become a reality.

As you travel around the country, you will have an opportunity to see first hand the Federal-State partnership in agricultural science and education.

My colleagues in USDA and I take that partnership seriously and endeavor to uphold the Federal responsibility for that joint enterprise.

I am personally pleased to see this visit take place, having been a part of the partnership that has evolved between India and U.S. universities over the past decades.

Sincerely,


ORVILLE G. BENTLEY
Assistant Secretary for
Science and Education



**BOARD FOR INTERNATIONAL FOOD AND AGRICULTURAL DEVELOPMENT
INTERNATIONAL DEVELOPMENT COOPERATION AGENCY**

Agency for International Development
Washington, D.C. 20523

January 13, 1986

Dr. S. R. Verma
Dean
College of Agricultural Engineering
Punjab Agricultural University
Ludhiana

Dear Dr. Verma:

On behalf of the Board for International Food and Agricultural Development (BIFAD) I take this opportunity to welcome you to the United States. The BIFAD represents the interests of U.S. universities in international agricultural development programs supported by the Agency for International Development. An important part of the BIFAD mission is to facilitate visits, such as yours, to key U.S. Universities.

Even though you are invited to this country officially by the U.S. Government, I want you to know that BIFAD members and staff want to be of every assistance possible in making your visit a success. Our BIFAD staff has worked closely with a team from the U.S. Agency for International Development, the U.S. Department of Agriculture and representatives of U.S. universities in planning your itinerary. I believe the activities that have been planned for you are excellent. The institutions and programs you will visit represent some of the best in the United States.

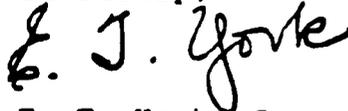
As you travel to U.S. universities and visit public and private sector programs, I sincerely hope you will discover activities where you think long-term linkages with your own institutions

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would have potential. I personally believe that appropriate collaboration can be beneficial to agricultural progress of both India and the United States.

I look forward to greeting you personally along your journey. Also, if possible I want to join you in Washington at the end of your tour for detailed discussions on your findings and ideas. Once again, I am delighted you are here and I extend to you a warm welcome.

Sincerely,

A handwritten signature in cursive script that reads "E. T. York, Jr." The signature is written in dark ink and is positioned above the typed name.

E. T. York, Jr.
Chairman

Attachment 5
Sample letter sent to the individuals on the attached list.



BOARD FOR INTERNATIONAL FOOD AND AGRICULTURAL DEVELOPMENT
INTERNATIONAL DEVELOPMENT COOPERATION AGENCY

Agency for International Development
Washington, D.C. 20523

January 13, 1986

Dr. W. Hinish
Acting Dean
College of Agriculture
Pennsylvania State University
University Park, Pennsylvania 16802

Dear Colleagues:

We sincerely appreciate your help and your enthusiasm in hosting the visiting deans of agriculture from India, January 19 - February 9, 1986.

This visit to United States agricultural universities by eight deans of agriculture from India and Dr. Maharaj Singh, Deputy Director General (Education) of the India Council for Agricultural Research (ICAR) is part of an overall program to build stronger relationships between two great democracies of the world, India and the United States.

The initial step in this program was taken when the deans of agriculture from six land grant universities, which had helped India in developing its agricultural universities, were invited to visit India in November 1984. The U.S. deans were guests of the Indian Ministry of External Affairs. Their visit in India was coordinated by ICAR.

Dr. Singh and the eight deans from India will be guests of the U.S. government. Their visit is financed by the U.S. Agency for International Development (USAID), and coordinated by BIFAD in cooperation with USAID, the USDA, NASULGC and various land grant universities.

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The purpose of this visit is fivefold:

1. To return the courtesy of the Indian government in hosting a visit of U.S. deans of agriculture in India in 1984.
2. To recognize the magnificent achievements of our Indian guests in building their agricultural universities and improving food production in India.
3. To provide the Indian deans an opportunity to renew institutional relationships with the U.S. land grant colleges of agriculture.
4. To provide the Indian deans an opportunity to examine the organization, management and operation of U.S. colleges of agriculture in performing their threefold mission of research, teaching and extension - also their place and relationships with USDA and private industry in the larger system.
5. To provide opportunity for discussion between Indian and U.S. deans on meeting agricultural research and education needs of the future for their respective countries.

We are enclosing for you:

1. names of the Indian deans and their schedule of visits;
2. a copy of the letter from Dr. E. T. York, Chairman of BIFAD, inviting the Indian deans for this visit;
3. a copy of the objectives of the U.S. deans visit to India in November, 1984;
4. an overview of the Indian agricultural education, research and extension system (you may wish to copy this to people on your campus who will be participating in the visit); and
5. a list of some points and suggested topics you may wish to consider in setting up the schedule for the Indian deans visit to your campus.

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The visiting deans will be representative of all the deans of agriculture in Indian agricultural universities. Most of them received their Ph.D.'s at land grant universities in the U.S. In their travel, they will be on per diem provided by USAID at U.S. government rates.

John Dunbar, Ron Pollock (USAID/India mission) and Floyd Williams (USAID/India Agricultural Research Project, Winrock) will each accompany one group of Indian deans on their visits.

John will continue to be in contact with you. If you have any questions, please call him at (703) 525-9430 through January 18. On January 19 and 20, he may be reached at the Ramada Inn, Old Town, (703) 683-6000.

Sincerely,



R. W. Kleib
Executive Director

Enclosures:

a/s

BIFAD Letter sent to the Following:

Dr. W. Hinish, Pennsylvania State U.
Dr. W. W. Armistead, U. of Tennessee
Dr. Francille Firebaugh, Ohio State U.
Dr. John R. Campbell, U. of Illinois
Dr. Walter Woods, Kansas State U.
Dr. Roger L. Mitchell, U. of Missouri
Dr. K. F. Tefertiller, U. of Florida
Dr. B. P. Cardon, U. of Arizona
Dr. J. A. Azbun, Washington State U.
Dr. I. W. Sherman, U. of California-Riverside

Copies sent to:

Dr. J. D. Jansma, Pennsylvania State U.
Dr. Glenn Hall, U. of Tennessee
Dr. Kim Erwin, Ohio State U.
Dr. John Nicholaides, U. of Illinois
Dr. Vern Larson, Kansas State U.
Dr. M. F. Nolan, U. of Missouri
Dr. H. L. Popenoe, U. of Florida
Dr. John Mare, U. of Arizona
Dr. O. Young, Washington State U.
Dr. S. D. Van Gundy, U. of California-Riverside

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PERSPECTIVE ON INDIAN AGRICULTURAL UNIVERSITIES ^{1/}

The missions of the Indian agricultural universities are the same as the missions of land-grant university colleges of agriculture in the United States; namely:

1. development of scientists, teachers and other trained manpower needed to improve agriculture and food production;
2. provide the science and technology base necessary for sustained growth in agricultural productivity, efficiency, and profitability;
3. provide practical and useful information to farmers, and help them learn how to use it profitably on their farms;
4. help develop the agriculture and agribusiness infrastructure for efficient service to farmers and consumers.

It has been observed that the problems (and opportunities) of deans of agriculture in the U.S. and India are very similar in nature, but with obvious differences in magnitude. Their missions are the same. Both work hard to secure adequate facilities, equipment and financial resources and allocate them to the most promising and beneficial uses. Both strive to enhance the excellence in their teachers and scientists. Both strive to keep all programs relevant and up-to-date. Both strive to develop and improve their institutions to better serve the people.

The U.S. agricultural deans who visited India in 1984 concluded that India can take great pride in its agricultural achievements. In 1951-52, India's production of food grains and other commodities was 61.6 million tons and its population was 361 million. By 1982-83, with a population of 730 million, India's agricultural production rose to 189.1 million tons. Since 1951, rice and sugar production have trebled. Wheat production has increased more than sevenfold. In the past 12 years, broiler production has increased 12 times, egg production has trebled, and milk production has doubled.

India can now proclaim to the world that it meets the food needs of its people and is able to maintain a buffer stock of 21 million tons. This is nothing short of a miracle.

But the challenge to the Indian government is still tremendous. The population will have increased to 970 million by the year 2000. So from 1982 to the year 2000 (only 18 years) food production will have to increase by 1/3 just to stay even, and by 40% to 50% if India is to improve the diet of its people.

For the years beyond 2000, the challenge to the agricultural education and research system is staggering. With limited natural resources (land, water, energy) a larger and larger proportion of increased production will have to come from improved technology, more purchased farm inputs (such as seed, fertilizer, and pesticides) improved production systems and better management. This will require geometric increases in agricultural research, teaching and extension programs.

^{1/} Prepared for information of U.S. agricultural universities and others involved in the visit of Indian deans of agriculture and home science to the United States, January 19 - February 9, 1986.

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Teaching Programs to Develop Manpower

To develop trained manpower for improving agriculture, the government of India has established 23 state agricultural universities built on the U.S. land-grant university model. Most of the funding for these universities is provided by the states. The balance comes from ICAR. Admission capacity in 1984 was 8,910 undergraduate, and 3,544 M.S. and Ph.D. students. M.S. and Ph.D. programs are also offered by the Indian Agricultural Research Institute, the Indian Veterinary Research Institute, and the Indian Dairy Research Institute. The Central Institute of Fisheries Education, Central Marine Fisheries Research Institute and Institute of Horticultural Research offer mostly M.S. and Ph.D. programs in collaboration with the Agricultural Universities. As of 1984, the Indian Agricultural Research Institute at New Delhi was training about 500 post graduate students, 50 of which were from foreign countries.

About 30 agricultural colleges affiliated with general universities are outside this orbit. As of 1978-79 there were 77 agricultural colleges, 21 veterinary colleges and 10 agricultural engineering colleges offering undergraduates training in India. Seventy eight of these colleges offered post graduate M.S. and/or Ph.D. programs.

Curricula are available in all academic areas relating to agriculture at many of these institutions.

With the help of the United Nations Development Program (UNDP), eleven centers of advanced studies have been established to help achieve academic excellence in post graduate education.

To help improve competence of faculties of the university, ICAR has created (1) post graduate fellowships for university teachers and others, (2) post doctoral fellowships, (3) advanced training programs in foreign countries for scientists/teachers of agricultural universities and ICAR Institutes, (4) preparation of textbooks based on experience gained in Indian Agriculture, and (5) best author and best teacher awards.

The ICAR subgroup on agricultural education for formulating the VII plan has recommended that (1) foreign assistance be secured for post graduate agricultural education and research at the centers of advanced studies and (2) advanced training in foreign countries for faculty members of agricultural universities and ICAR institutes.

Growth has taken place in the number of agricultural and veterinary graduates produced in India each year as follows:

	<u>1951</u>	<u>1977</u>
Agricultural graduates	1065	4671
Agricultural postgraduates	192	1439
Veterinary graduates	242	1307
Veterinary postgraduates	—	338
Ph.D. (Agriculture)	—	216
Ph.D. (Veterinary science)	—	66

* Latest data available in "50 years of Agricultural Research and Education," ICAR, 1979, p. 167.

The Indian Agricultural Research System

The government of India has developed a very comprehensive, well organized, well coordinated agricultural research system. This system has the capability to produce both the basic and applied research necessary for sustained improvement and growth of agricultural production. The salient parts of this system are:

1. State agricultural experiment stations operated by the agricultural universities. The universities are responsible for research in crop production (including horticulture), livestock production, fisheries, agroforestry and sericulture. Their research programs include both basic and applied research. The list of projects and research findings in their annual reports are very much like one would find in the annual report of a state agricultural experiment station in the United States.

2. India Council of Agriculture Research Institutes. ICAR directly administers 37 agricultural research institutes representing all crops/commodities/animal species/discipline/systems. Many of these institutes have regional locations in various parts of the country. Fourteen of the 37 institutes are for crop production.

3. National bureaus to preserve long-term productivity of basic resources. National bureaus have been set up for Plant Genetic resources, soil survey and land use planning, animal genetic resources and fish genetic resources.

4. National centers of fundamental research to provide basic research in selected areas. These centers are managed and operated by either a Professor of eminence or a national professor.

5. All-India Coordinated Research Projects, a responsibility of ICAR. For crop production alone, there were 45 all India coordinated projects in 1984.

These projects are operated on a national basis through the interdisciplinary, multi-location approach. Their center may be located at a university or central institute. They are managed by a coordinator and staff. Through this linkage, they bring to bear scientific resources and expertise from a number of institutions. Through coordinated programs they test results in all of India's agroecological zones and in various socioeconomic areas. This speeds up testing and makes possible wider spread, more rapid adoption. Private industry may be involved on a cost sharing basis.

Project directorates are set up for highly intensive efforts on All-India coordinated projects. They have been set up for rice, wheat, pulses, oilseeds and dryland agriculture.

6. Ad Hoc Research. Well defined, short-term, limited objective projects are done under this program to solve immediate and pressing problems. Funding comes from the Agricultural Produce Cess Fund collected from ad valorem taxes on agricultural exports.

7. Interorganizational Research. This involves collaboration by ICAR and other institutions on fundamental research important to agriculture. Other cooperating institutions include the Council of Scientific and Industrial

Research, the Indian Council of Medical Research, the Indian Council of Social Sciences Research, the India Meteorological Department, the Central Water and Power Commission, the National Dairy Development Board, et al.

8. International collaboration, carried out through memoranda of understanding. These memoranda facilitate (1) exchange and testing of genetic material, (2) exchange of literature, and (3) exchange of scientists.

There are three types of international collaborative efforts: (1) Where assistance is sought to enhance a specific area or discipline. (2) For general scientific and technical cooperation in the field of agriculture. (3) To implement or participate in projects or enhance institutes.

ICAR has agreements with many countries and international organizations including CIMMYT, IRRI, ICRISAT, PCARR, Canada, UK, New Zealand, Denmark, and others.

A joint Indo/US subcommission on agriculture has been in operation for several years to identify priorities for cooperation in the agricultural sciences. The Director General of ICAR and the Assistant Secretary of Agriculture for Science and Education of the U.S. are joint chairmen of this commission. Meetings are held each year alternating between India and the U.S. The commission facilitates cooperation between ICAR, USAID, The Far Eastern Regional Office, OICD/USDA, and FAS/USDA. The subcommission develops recommendations on priority items, enumerates ongoing and planned activities and makes pertinent remarks or suggestions.

It is gratifying to note that Indian agricultural research has been developed to the point that it now provides an Indian scientific base for food production in India. Its agricultural research program has taken a prominent place among the preeminent agricultural research programs in the world. Indian agricultural research scientists, for example, have already taken their wheat breeding program far beyond the varieties which were introduced at the beginning of the green revolution. Another example is in egg and broiler production. Initially productivity was increased with grandparent lines imported from Europe and America. Now, however, India has pure lines for layers and broilers which were developed in India by Indian scientists and their production potential (under Indian conditions) is as high as the potential of the imported, grandparent lines.

The Indian Agricultural Extension System

From its beginning in the early 1950's the extension service in India has made a large contribution to the improvement of agriculture and increased food production. At the national level, it is a department in the Ministry of Agriculture, not under ICAR. In the states it is under the State Secretary of Agriculture.

Generally speaking, extension programs are carried out under the block system. India's 550,000 villages are divided into blocks of 100. In each block, subject matter specialists advise village extension workers. In turn, the village workers advise farmers.

In the Indian system, extension is also one of the three functions of the agricultural universities. "One of the essential features of the agricultural university system is the acceptance of a philosophy of service to agriculture and the rural community. To fulfill this commitment, it is essential that each university have an adequate and effective communication of new knowledge to the farmers." ^{1/}

As a general rule, the directorate of extension education in the agricultural universities is organized directly under the Vice Chancellor (chief executive officer of the university). Within extension, there are two main wings:

A. Department of Extension Education - for collegiate education and research,

B. Farm Advisory Service - with:

1. specialists at the main campus and regional/district level;
2. a training unit; and
3. a communication center with audio/visual and printing facilities and publications.

Concerning the farm advisory service, The ICAR Review Committee on Agricultural Universities in 1978 said:

The university specialists working at various levels are primarily meant for providing subject-matter support to the staff of the State Government Departments to assist them in conducting training programmes for extension personnel and farmers and to provide advisory service to farmers. In addition, they provide the channel for maintaining a regular feedback of farm problems to the university. In order to discharge this role, it is necessary to develop a suitable farm advisory service with the following functions:

- (a) to conduct first line demonstrations,
- (b) to provide advisory service to farmers and to organise field days/Kisan Melas,
- (c) to assist in training programmes of extension personnel, and to provide resource personnel to State Government for farmers, training programmes,
- (d) to prepare extension literature and teaching aids.

The scope of farm advisory services should be extended to cover areas like Animal Husbandry, Fisheries, Dairy, Agricultural Engineering and Home Science which are presently neglected. In order to provide an effective outlet for testing the university's extension programme, a block of 100 villages should be attached to each agricultural university. This will also help the universities to carry out operational research programmes.

^{1/} Report of the Review Committee on Agricultural Universities, ICAR, 1978.

As of 1978, only 6% of the agricultural universities budgets were available for extension activities.

The development of effective linkages between the state agricultural universities and the state departments of agriculture has been and remains a difficult problem because they come under two separate government entities.

Haryana Agricultural University has worked out a memorandum of understanding with the state department of agriculture for bridging this gap. It provides the linkages necessary for effectively bringing the knowledge developed through research to the people for their profitable use.

The 1978 ICAR review committee on agricultural universities recommended that the Haryana model be adopted throughout the country. It is reproduced here for your information.

MEMORANDUM OF UNDERSTANDING BETWEEN UNIVERSITY OF AGRICULTURAL SCIENCES, BANGALORE AND DEPARTMENT OF AGRICULTURE, KARNATAKA

The Department of Agriculture has established a state-wide agency for performing extension work, developmental tasks, regulatory functions and to ensure supplies and services. The UAS has a legal responsibility to undertake extension education work in the State. From the view point of efficiency as well as economy, it is necessary that these two organisations co-ordinate their efforts in developing useful activities and in effectively serving the farm communities of the State. In this connection, a memorandum of understanding is developed to provide an operational basis for the two organisations.

1. The Department of Agriculture shall have the overall responsibility for extension work, developmental tasks, regulatory functions and supplies and services, in the sphere of agriculture, while the University of Agricultural Sciences shall have the responsibility for a limited extension education function covering evaluation of research findings, introduction of new farm technology through early demonstrations, providing primary information support and innovating methodological improvements in extension work.

2. In developing new farm technology, a major role is to be played by the university. The Department of Agriculture will have an important role in suggesting important field problems and in formulating new farm technologies using research information through a process of deliberation with the university.

3. The responsibility of conducting field trials shall be shared by the UAS with the Department of Agriculture. Around the Research Stations, where the University Extension Education Units are in operation, this task shall be performed by the University extension units in co-operation with the Department of Agriculture. In addition, this task shall be performed by the Department of Agriculture with the association of the university. The annual programmes for conducting field trials shall be developed jointly by the representatives of the UAS and the Department of Agriculture.

4. Establishing early demonstrations shall be the responsibility of the University of Agricultural Sciences. In areas around the Research Stations, the University extension units shall perform this function. Further, this responsibility shall also be discharged by the selected Agricultural Extension Officer of the Department of Agriculture who will work under the technical guidance of the university. Such selected AEOs shall act as a link between the University and the Department of Agriculture providing the means for the transmission of technical information at the operational level.

5. In the sphere of farm information service, there shall be a common Information Cell between the University of Agricultural Sciences and the Department of Agriculture which will develop annual programmes of farm information based on the new information that becomes available from time to time and the information tasks that are considered necessary to be performed.

6. Organising training programmes shall be done on the basis of annual programmes of training developed through the training committee that may be constituted with the concerned functionaries of the University of Agricultural Sciences and the Department of Agriculture. Such a Committee would form and agree upon the annual programmes of training to be conducted by the university for the benefit of the key functionaries of the Department of Agriculture as well as annual training programmes to be conducted by the Department of Agriculture in which the university will play a supportive role.

7. The university shall provide specialist support from time to time on specific requests to help the Department of Agriculture in handling specialised tasks depending upon the personnel available and the time that could be devoted for such responsibilities.

8. The University of Agricultural Sciences will formulate in consultation with the Department of Agriculture, programmes of extension studies. In conducting such studies, assistance shall be provided by the Officers of the Department of Agriculture, whenever necessary. The results of such studies shall be shared by the two organisations.

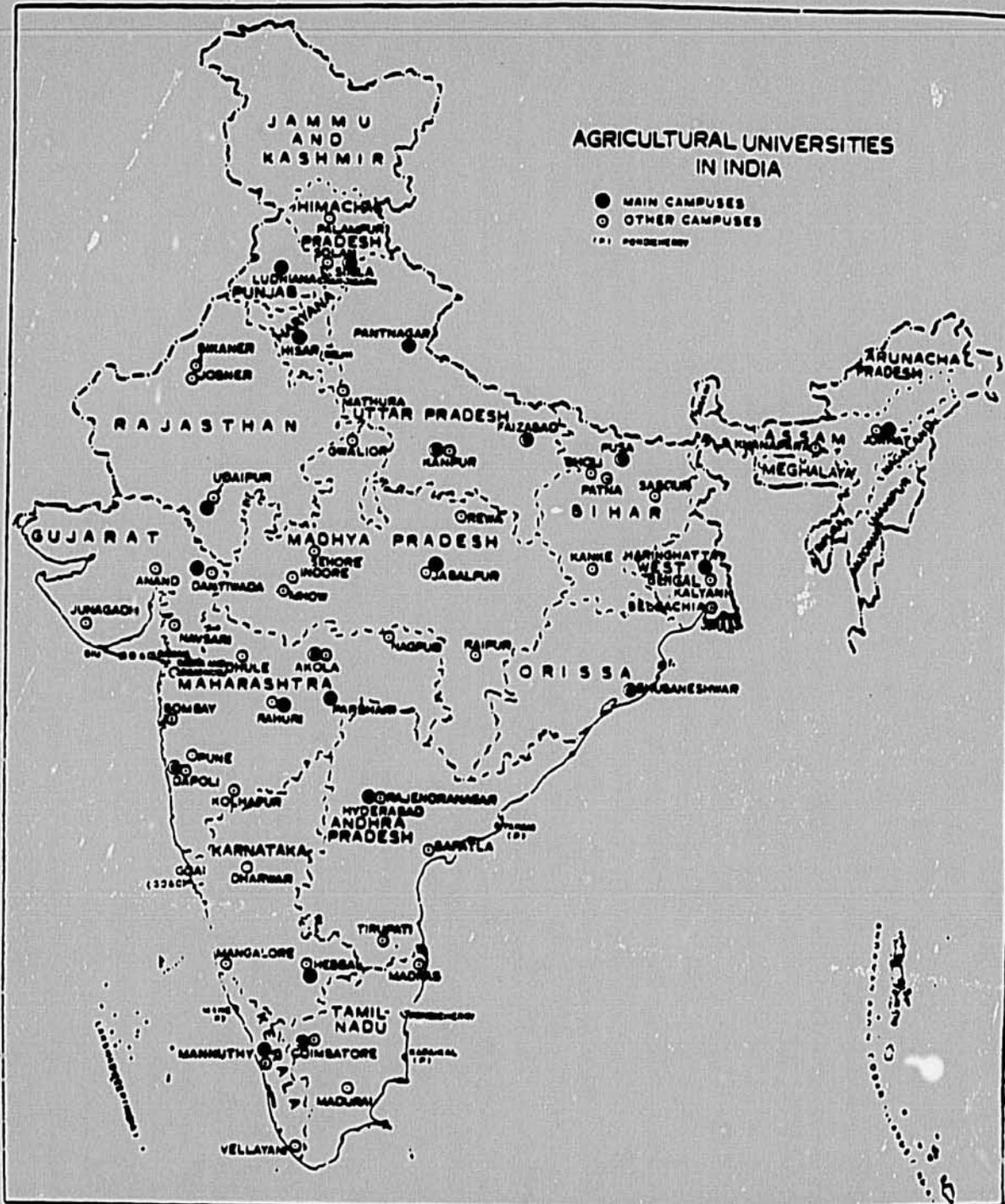
9. In tackling special problems, the University or the Department of Agriculture may take leadership as the case may be. There shall be mutual assistance wherever necessary and possible in handling such special problems.

10. There shall be a working arrangement between the University of Agricultural Sciences and the Department of Agriculture in conducting limited extension functions by the University. In areas around Research Stations, the university shall have extension education units consisting of Extension Guides at the taluk level, Subject-matter specialists at the Regional level to start with and at the District level subsequently, if necessary, and Extension Leader performing the supervisory function. The programmes of these units shall be developed by the university extension functionaries in which the concerned area officer of the Department of Agriculture will be associated. The university shall also work through agricultural extension officers selected with the consent of the department of Agriculture who would be technically guided and supervised by the university. In these cases, the technical subject matter shall be given by the university extension subject-matter specialists and the extension leadership shall be provided by the concerned University Extension Leader.

11. There shall be an extension co-ordination committee consisting of the Director of Extension, Training Coordinator, Director of Agriculture and the Joint Director of Agriculture (Dev.). This committee shall be responsible for formulating the policy frame-work, based on this memorandum of understanding, within which various specific functions shall be conducted.

12. Any modification in this memorandum of understanding shall be considered thoroughly and shall be incorporated into this memorandum on the basis of mutual consultation and consent.

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Based upon Survey of India map with the permission of the Surveyor General of India. © Government of India copyright 1978. The territorial waters of India extend into the sea to a distance of twelve nautical miles measured from the appropriate base line. The boundary of Meghalaya shown in this map is as interpreted from the North-Eastern Areas (Re-organization) Act, 1971, but has yet to be verified.

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Information and Suggestions of Possible
Topics to Cover in the Indian Deans Visit

1. An overview of the university with emphasis on interrelationships between the college of agriculture and other colleges in the university.
2. An overview of the college of agriculture with emphasis on each of the three functions as to:
 - o mission
 - o organization
 - o sources of funds
 - o faculty development
 - o program development and decision making
 - o management of research, teaching and extension programs
 - o advisory and support groups for the college, extension, AES, departments, etc.
 - o use of faculty exchanges, collaborative projects, visiting professors, sabbatical leaves, etc., for program enhancement and faculty development.
3. Relationships between research, teaching and extension in the college of agriculture; and
 - o USDA
 - o other federal agencies or programs
 - o State Department of Agriculture and other state agencies
 - o county government
 - o private industry
4. In-depth discussions of the college research or teaching or extension program. Please include 4H and use of volunteers in discussions of extension.
5. A visit to a department with highly integrated research, teaching and extension program.
6. A meeting or seminar with heads and faculty to allow the Indian deans to discuss progress in Indian agriculture, the development of their colleges, plans for the future of their colleges.
7. A visit to a USDA lab, if possible.
8. A visit to private industry; representing either input production, or the processing, marketing and distribution industry.
9. An example of a highly successful interdisciplinary program which cuts across research, extension, teaching and private industry, and goes from basic research to farm adoption to show how coordination takes place.
10. Any fundamental reorganization of the College of Agriculture that has taken place (or is contemplated) to better meet the agricultural education and research needs of the people of the state now and in the future.
11. Discussion of ongoing cooperative work between India and the university.

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1/21/86

ITINERARY

Dr. Maharaj Singh

Tue., Jan., 21	To Raleigh, NC (RDU)			
	WAS/RDU	1440/1530	PI 41	
Thur., Jan., 23	To Champaign-Urbana, IL (CMI)			
	RDU/St. Louis (STL)	1200/1340	OZ 704	
	STL/CMI	1410/1500	RU 383	
Sun., Jan., 26	To St. Louis (STL)			
	CMI/STL	1655/1735	OZ 635	
Mon., Jan., 27	To Pullman, WA (PUW)			
	STL/Denver (DEN)	0740/0850	UA 987	
	DEN/Boise (BOI)	0946/1136	UA 987	
	BOI/PUW	1210/1240	UA 2541 (Horizon Air)	
	PUW/Moscow, ID	by car (10 miles)		
Wed., Jan., 29	To Corvallis, OR			
	PUW/Spokane(GEG)	by car (85 miles)		
	GEG/Portland (PDX)	1400/1435	AS 194	
	PDX/Corvallis	by car (81 miles)		
Sat., Feb., 1	To Riverside, CA (Ontario, CA - ONT)			
	Corvallis/PDX	by car (81 miles)		
	PDX/ONT	0840/1130	AS 106	
Wed., Feb., 5	To Washington, DC			
	ONT/Chicago (CHI)	0930/1506	AA 276	
	CHI/Washington (Nat'l)	1604/1832	AA 562	

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1/21/86

ITINERARY

Dr. Choudhary

Tues., Jan 21	To Knoxville, TN (TYS)		
	WAS/TYS	1420/1745	DL 319
Thurs., Jan 23	To Urbana, IL		
	TYS/Chicago (CHI)	0701/0734	UA 685
	CHI/CMI (Champaign)	1000/1050	RU 709
Sat., Jan 25	To Manhattan, KS (MHK)		
	CMI/STL	0716/	OZ 617
	STL/Kansas City (MKC)	0845/0940	FL 17
	MKC/MHK	1100/1145	RX 103
Wed., Jan 29	To Tucson, AZ (TUS)		
	MHK/MKC	0905/0940	ZV 904
	MKC/TUS	1020/1249	EA 225
Sat., Feb 1	To Riverside, CA (Ontario, CA - ONT)		
	TUS/ONT	1235/1400	HP 231
Wed., Feb 5	To Washington, DC		
	ONT/Chicago (CHI)	0930/1506	AA 276
	CHI/Washington (Nat'l)	1604/1832	AA 562

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1/21/86

ITINERARY

Dr. Khuspe

Tues., Jan 21	To Penn State, State College, PA (SCE)		
	DCA/PIT	1300/1351	AL 23
	PIT/SCE	1445/1545	AL 1248
Sat., Jan 25	To KSU, Manhattan, KS (MHK)		
	SCE/PIT	0700/0800	AL 1249
	PIT/MKC	0955/1104	AL 65
	MKC/MHK	1140/1220	ZV 947
Wed., Jan 29	To Pullman, WA (PUW)		
	MHK/MKC	1200/1235	ZV 27
	MKC/Seattle (SEA)	1306/1639	FL 553
	SEA/PUW	1745/1850	UA 2508
Sat., Feb 1	To Riverside, CA (Ontario, CA - ONT)		
	PUW/SEA	1015/1125	CZ 634
	SEA/ONT	1155/1510	AS 60
Wed., Feb 5	Washington, DC		
	ONT/Chicago (CHI)	0930/1506	AA 276
	CHI/Washington (Nat'l)	1604/1832	AA 562

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1/21/86

ITINERARY

Dr. Malik

Tues., Jan 21	To Knoxville, TN (TYS)		
	WAS/TYS	1420/1745	DL 319
Thurs., Jan 23	To Urbana, IL		
	TYS/Chicago (CHI)	0701/0734	UA 685
	CHI/CMI (Champaign)	1000/1050	RU 709
Sun., Jan 26	To Manhattan, KS (MHK)		
	CMI/STL	1000/1050	RU 396
	STL/Kansas City (MKC)	1145/1242	TW 341
	MKC/MHK	1315/1400	RX 107
Wed., Jan 29	To Tuscon, AZ (TUS)		
	MHK/MKC	0905/0940	ZV 904
	MKC/TUS	1020/1249	EA 225
Sat., Feb 1	To Riverside, CA (Ontario, CA - ONT)		
	TUS/ONT	1235/1400	HP 231
Wed., Feb 5	To Washington, DC		
	ONT/Chicago (CHI)	0930/1506	AA 276
	CHI/Washington (Nat'l)	1604/1832	AA 562

1/21/86

ITINERARY

Dr. Misra

Tues., Jan 21	To Ohio State, Columbus, OH (CMH)		
	DCA/CMH	1555/1703	AL 131
Sat., Jan 25	To Columbia, MO		
	CMH/STL	1020/1042	TW 489
	STL/Columbia, MO	1130/1210	OZ 505
Wed., Jan 29	To Gainesville, FL (GNV)		
	Columbia/STL	0850/0935	OZ 1122
	STL/Atlanta (ATL)	1100/1320	EA 273
	ATL/GNV	1421/1519	EA 943
Sat., Feb 1	Riverside, CA (Ontario, CA - ONT)		
	GNV/ATL	0630/0745	DL 1291
	ATL/ONT	0837/1109	DL 423
Wed., Feb 5	Washington, DC		
	ONT/Chicago (CHI)	0930/1506	AA 276
	CHI/Washington (Nat'l)	1604/1832	AA 562

1/21/86

ITINERARY

Dr. Mehrotra

Tues., Jan 21	To Ohio State, Columbus, OH (CMH)		
	DCA/CMH	1555/1703	AL 131
Sat., Jan 25	To Columbia, MO		
	CMH/STL	1020/1042	TW 489
	STL/Columbia, MO	1130/1210	OZ 505
Wed., Jan 29	To Gainesville, FL (GNV)		
	Columbia/STL	0850/0935	OZ 1122
	STL/Atlanta (ATL)	1100/1320	EA 273
	ATL/GNV	1421/1519	EA 943
Sat., Feb 1	Riverside, CA (Ontario, CA -ONT)		
	GNV/ATL	0630/0745	DL 1291
	ATL/ONT	0837/1109	DL 423
Wed., Feb 5	Washington, DC		
	ONT/Chicago (CHI)	0930/1506	AA 276
	CHI/ONT	1604/1832	AA 562

1/21/86

ITINERARY

Dr. Pushpama

Tues., Jan 21	To Penn State, State College, PA (SCE)		
	DCA/PIT	1300/1351	AL 23
	PIT/SCE	1445/1545	AL 1248
Sat., Jan 25	To Purdue Univ., Lafayette, IN (LAF)		
	SCE/PIT	0700/0800	AL 1249
	PIT/Chicago (CHI)	0835/0902	AL 351
	CHI/LAF	1155/1340	RU 101
Sun., Jan 26	To Kansas State, Manhattan, KS (MHK)		
	LAF/CHI	1610/1555	RU 166
	CHI/Kansas City (MKC)	1705/1820	BN 569
	MKC/MHK	1930/2010	ZV 826
Wed., Jan 29	To Pullman, WA (PUW)		
	MHK/MKC	1200/1235	ZV 27
	MKC/Seattle (SEA)	1306/1639	FL 553
	SEA/(PUW)	1745/1850	UA 2508
Sat., Feb 1	To Riverside, CA (Ontario, CA - ONT)		
	PUW/SEA	1015/1125	CZ 634
	SEA/ONT	1155/1510	AS 126
Wed., Feb 5	Washington, DC		
	ONT/Chicago (CHI)	0930/1506	AA 276
	CHI/Washington (Nat'l)	1604/1832	AA 562

1/21/86

ITINERARY

Dr. Shetty

Tues., Jan 21	To Knoxville, TN (TYS)		
	WAS/TYS	1420/1745	DL 319
Thur., Jan 23	To Auburn, AL		
	TYS/Atlanta, GA (ATL)	1235/1320	EA 541
	ATL/Columbus, GA (CSG)	1555/1625	EA 3263
	Columbus, GA to Auburn	by car (35 miles)	
Sat., Jan 25	To Baton Rouge, LA (BTR)		
	CSG/ATL	1030/1110	DL 1235
	ATL/BTR	1153/1215	DL 1089
Wed., Jan 29	To Tucson, AZ (TUS)		
	BTR/DFW	1315/1424	DL 1050
	DFW/TUS	1609/1723	AA 467
Sat., Feb 1	To Riverside, CA (Ontario, CA - ONT)		
	TUS/ONT	1235/1400	HP 231
Wed., Feb 5	To Washington, DC		
	ONT/Chicago (CHI)	0930/1506	AA 276
	CHI/ONT	1604/1832	AA 562

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1/21/86

ITINERARY

Dr. Verma

Tues., Jan 21	To Ohio State, Columbus, OH (CMH)		
	DCA/CMH	1555/1703	AL 131
Sat., Jan 25	To Columbia, MO		
	CMH/STL	1020/1042	TW 489
	STL/Columbia, MO	1130/1210	OZ 505
Wed., Jan 29	To Gainesville, FL (GNV)		
	Columbia/STL	0850/0935	OZ 1122
	STL/Atlanta (ATL)	1100/1320	EA 273
	ATL/GNV	1421/1519	EA 943
Sat., Feb 1	To Riverside, CA (Ontario, CA - ONT)		
	GNV/ATL	0630/0745	DL 1291
	ATL/ONT	0837/1109	DL 423
Wed., Feb 5	To Washington, DC		
	ONT/Chicago (CHI)	0930/1506	AA 276
	CHI/Washington (National)	1604/1832	AA 562

INDIAN DELEGATION
DEANS OF AGRICULTURAL SCIENCE

Washington, DC Area Program

HOST: United States Agency for International Development, Board for International Food and Agricultural Development (BIFAD), Washington, DC 20523.
Dr. Robert Kleis, Executive Director, (202) 647-8976

VISIT COORDINATOR: Winrock International Institute for Agricultural Development, Arlington, VA 22209.
Dr. Floyd Williams, Dr. John Dunbar,
Ms. Surbhi Bhatt, Ms. Barbara Polgar, (703) 525-9430

HOTEL: February 5-8
King Arthur's Court
2250 Wilson Blvd.
Arlington, VA 22201
(703) 524-8850

SCHEDULE:

Thursday, February 6, 1986

USDA Beltsville:

0800 - 0900 - Bus from hotel to USDA laboratories, Beltsville

0900 - 1000 - Drive through tour, USDA, Beltsville

1000 - 1020 - Break

1020 - 1100 - Biotechnology Research and its Implications

1100 - 1130 - Mission, Organization, Operation and Management of
the Agricultural Research Service
Dr. Mary Carter, Deputy Administrator, Agricultural
Research Service

1130 - 1215 - Lunch

1215 - 1300 - Beltsville to State Department

STATE DEPARTMENT: Room 1107

Afternoon Chairperson: Dr. Anson Bertrand, Director,
Office of Agriculture, S&T, USAID

1330 - 1415 - Science & Technology for the Future
Dr. Nyle Brady, Senior Assistant Administrator, S&T, USAID

1415 - 1445 - Agricultural Research Programs for the 21st Century
Dr. N.P. Clarke, DVM, Director Agricultural Experiment
Station, Texas A&M University

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(Thursday, Feb. 6 continued)

1445 - 1500 - Break

1500 - 1530 - Extension Programs for the 21st Century
Dr. W.R. (Bill) Oschwald, Director, Cooperative Extension Service, University of Illinois

1530 - 1600 - Building Scientific Manpower for Agriculture in the 21st Century
Dr. Ken Reisch, Associate Dean, College of Agriculture, The Ohio State University

1600 - 1630 - Land Grant University's Commitment to International Agricultural Development
Dr. Duane Acker, President, Kansas State University

1900 - Dinner, Ramada Hotel - Old Town, (Alexandria, VA)
Chairperson: Dr. Robert Kleis, Executive Director, BIFAD
Remarks by: Dr. Ralph Cummings, Sr., Professor Emeritus, North Carolina State University, and
Dr. Douglas Ensminger, Professor Emeritus, University of Missouri
Welcome: Dr. E.T. York, Jr., Chairman, BIFAD

Friday, February 7, 1986 - USDA, Room 3056 South Building
(Enter 4th wing facing Independence)

Chairperson: Dr. Wayne Hinish, Acting Dean of Agriculture, Pennsylvania State University

0800 - 0830 Taxi to USDA

0845 - 1000 - Welcome to USDA: Mr. Daniel G. Amstutz, Undersecretary for International Affairs and Commodity Programs

Observations of U.S. Land Grant Universities - Indian Deans

1000 - 1020 - Break, Room 3056, South Building

1020 - 1040 - Opportunities for Our Future - Dr. Maharaj Singh, Deputy Director General (Education), ICAR

1040 - 1120 - Discussion

1120 - 1130 - Closing Remark - Dr. R.W. Kleis, Executive Director, BIFAD

1130 - 1200 - Group Photos, etc.

1200 - Lunch at USDA courtesy of Mr. Howard Marks

(Afternoon and evening for individual appointments)

Saturday, February 8, 1986 - Depart

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SCIENCE AND TECHNOLOGY FOR THE FUTURE

Talking Points

N.C. Brady*

INTRODUCTION

- o Let me reiterate Mr. McPherson's welcome to you and express my pleasure at this opportunity to address such distinguished guests and colleagues.
- o India and the United States have been building a joint science and technology structure since the late 1950s.
 - The visit of this delegation, representing India's powerful agricultural research, training and extension community, add a building block to that structure.
- o Our current collaboration is possible because both of our countries have well-developed science and technology capacities
 - I know through my own experience and that of U.S. colleagues in a variety of scientific disciplines how proud Americans are of their skills and accomplishments.
 - Through that knowledge, I can intuit the pride you and your colleagues at home must have in the tremendous strides India has taken in science and technology during the last 25 years
- o As you know from your recent visits, the U.S. land-grant universities that helped India to build a firm foundation of agricultural research, training and extension in the late 1950s and 1960s are pleased to have been part of that process.

* Senior Assistant Administrator for Science and Technology, U.S. Agency for International Development. Remarks delivered to the delegation of Indian Deans of Agriculture at the State Department, Washington, D.C. on February 6, 1986.

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- o Through her newly vitalized agricultural universities, India met the challenge of agricultural development and vastly increased her food production.
- In 1951-52, when India's population was 361 million, her production of food commodities was less than 62 (61.6) million tons.

By 1982-83, when India's population had slightly more than doubled to 730 million, her agricultural production had more than tripled to over 189 (189.1) million tons and the country was self-sufficient in grain.

- Through your new and improved universities, training and education of scientists and technicians in these fields has also progressed rapidly.

Today, your country has over 2 million individuals with graduate or post-graduate degrees in those four fields and is a major world resource of scientific and technological expertise and potential.

- o I saw clear evidence of your human resources during my eight years (1973-1981) as Director General of the International Rice Research Institute in the Philippines where I observed the research work of many well-trained Ph.D. scientists from India who came to IRRI for post-doctoral training.
- o Our two great democracies must continue building this collaborative science and technology structure in order to further enhance their own abilities and to increase the tools we have for assisting others.

A.I.D.'S EMPHASIS ON SCIENCE AND TECHNOLOGY

- o In the United States, the U.S. Agency for International Development (A.I.D.) is a major source of science and technology for development assistance.
 - During the last quarter of a century, A.I.D. has learned from its experience in India and elsewhere that science and technology play a critical role in successful and enduring development.
 - On this increasing base of knowledge, A.I.D. has built an extensive science and technology agenda of its own.
- o Today, A.I.D. cooperates with many other countries, international and regional research centers and other research institutions to focus on science and technology in development.
- o Our collaboration with India provides some excellent examples:

Indo-U.S. Science and Technology Initiative (STI)

- In 1982, India's Prime Minister Indira Gandhi and U.S. President Ronald Reagan added a building block to our science and technology structure by creating the Indo-U.S. S&T Initiative (STI), a "model" bilateral research program.
- The basic concept of the STI was to bring together Indian and U.S. researchers who were already working on selected scientific problems of priority interest to both of our countries in:
 - agriculture
 - health and human fertility
 - meteorology, and
 - solid state science.

- In the United States, A.I.D. is the lead coordinating agency for the agricultural topics and for the solid state science.
- STI has developed into a productive and cohesive research program, stimulating research activities that utilize the comparative advantages of the Indian and U.S. research communities.
- The agricultural collaboration between India and A.I.D. points the way to possible joint undertakings that may produce findings of direct interest to the agricultural communities in our countries and elsewhere.
- Because of its realized and potential value, beginning in November of 1985 the STI was extended for three years beyond its original two-year mandate.

Indo-U.S. Research and Technology Development Program (R&TD)

- The Indo-U.S. Research and Technology Development Program, co-administered and jointly funded by the Government of India and USAID, is another building block in our collaborative S&T structure.
- R&TD will focus on India's priority development needs in agriculture, health, energy, private sector and science and technology.
- Its longer 10-year time frame will give Indian and U.S. scientists not only the opportunity to perform needed research, but also time to test, evaluate and confirm their research results.

Vaccine Development Action Program (VDAP)

- Prime Minister Gandhi and President Reagan also endorsed the Vaccine Development Action Program (VDAP), a coordinating umbrella for planned and ongoing vaccine development efforts.
- VDAP will bring together Indian and U.S. scientists to jointly develop and test new and improved vaccines for immunization against such diseases as hepatitis and rabies, and enteric infections including diarrheal diseases.
- Collaborative VDAP activities will focus on:

Transfer of technologies for the production and quality control of vaccines used in immunization programs -- which is a focal point of A.I.D.'s health program;

Vaccine field trials, which are of considerable interest to A.I.D. and other health agencies; and

Epidemiology training, which is a current joint CDC/AID effort.

- India and the United States are now negotiating a VDAP Memorandum of Understanding (MOU). All of the involved U.S. departments and agencies have submitted their comments and the MOU is being circulated in India for final clearance.

The first VDAP scientific meeting is being planned for March 3-5, 1986. Subsequently, the VDAP Joint Working Group, which I co-chair with U.S. Surgeon General Everett Koop, will meet to sanction the initial set of activities.

The VDAP/MOU process thus far has moved very smoothly and we hope for and anticipate early clearance in India so that plans for subsequent activities can be finalized.

VDAP is another important building block in the India/U.S. science and technology structure.

A.I.D.'s S&T Investment in India

- Planned obligations for R&TD still total \$85.8 through FY 1987 despite budget reductions. R&TD, therefore, represents a larger portion of A.I.D.'s program in India than when it was first planned.

A.I.D.'s S&T Investment in Thailand

- USAID in Thailand is increasing its emphasis on S&T:

A 7-year science and technology initiative, begun this year, will cost \$35 million.

After FY 1987, 40% of program dollars will be spent for science and technology.

A.I.D.'s S&T Investment in Egypt

- USAID in Egypt will invest about \$100 million in science and technology over the next 5 years.
- Other major S&T investments in Egypt include:

The Peace Fellowships Competitive Scholarship Program which has spent \$54 million since 1980; another \$6 million is currently being invested.

An Applied S&T Research Program, begun in 1977, which received \$24.4 million and is still running.

\$22 million spent on rice research.

\$17.5 million spent on university linkages in 1980.

ASSISTING LESS DEVELOPED COUNTRIES IN AFRICA AND ELSEWHERE

- o With such assistance, India and other countries that were relatively less developed 30 years ago are attaining economic and food security.

- o Today, many less developed countries are not so fortunate. In particular, countries in the sub-Saharan region of Africa are at great risk. The tragic events of the last few years are only "the tip of the iceberg."
 - Since 1960, growth in aggregate food production in Africa has averaged less than 2% per year and food yields per hectare are the lowest in the world.

 - Since 1970, Africa's population has been growing at an annual average rate of 2.9% (3.2% in the Sahel), considerably faster than the growth of food production on that continent.

 - Dependence on food aid has increased (U.S. FY 1985 emergency food aid for Africa was over 1.8 million metric tons valued at more than \$782 million).

 - Scarce foreign exchange is being used for food imports rather than for other pressing development needs.

LEARNING FROM ASIA

- o We need to help Africa make changes like the ones made in Asia during the last quarter of a century.

- o University development must follow the pattern that was so successful in India:
 - Education and training of scientists and technicians;

- American educators to temporarily enhance teaching staffs until in-country faculties can be more fully developed.
- Opportunities should be provided for African students and educators to observe the well-developed system in Asian universities.
- o Commodity networks, such as those that contributed extensively to the Green Revolution in Asia, must be developed to:
 - Plan research on common problems;
 - Report and monitor research activities;
 - Exchange technical information; and
 - Improve the cost-effectiveness of available scientific and financial resources.
- In Africa, A.I.D. will focus network research support on priority food crops: maize, sorghum, millet, upland rice, roots and tubers (cassava and potatoes), and edible legumes (beans and cowpeas).
- Leadership is needed to strengthen current and planned networks in Africa so that they can perform satisfactorily.
- One important source of such leadership is countries like India which have successfully met this challenge under similar circumstances.
- Indian agricultural universities have participated in such networks as the International Rice Testing Program and have valuable experience to share.

PROGRAM IN SCIENCE AND TECHNOLOGY COOPERATION (PSTC)

- o A.I.D. is also looking ahead to establish priorities for future programs in science and technology transfer.

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- o Through our Office of the Science Advisor, A.I.D.'s Program in Science and Technology Cooperation (PSTC) seeks to stimulate new and innovative research that can be readily applied to problems that confront developing countries.
 - While the competitive system for awarding these small-scale grants is open to U.S. investigators, PSTC particularly encourages and gives priority to submissions from scientists in A.I.D.-assisted developing countries.

CONCLUSION

- o These short- and long-range initiatives testify to the fact that A.I.D. has a broad and selective science and technology agenda.
 - Far from being just a funding source, the Agency is in the forefront of innovative scientific and technological efforts to improve conditions in the developing world.
 - To enhance these efforts, we seek collaborative, synergizing relationships in which comparative advantage can be put to work.
- o India's commitment to science and technology is clear and extensive.
 - Her experience with and insights into using science and technology for development make her a valuable partner as we continue the work of development assistance.
 - Together, India and the United States can be a significant and vital force in helping less developed countries, particularly in Africa, to overcome barriers and move closer to self-sustaining progress.
- o A.I.D. invites you to collaborate with us in these efforts to assist the people of Africa.

GUEST LIST
DINNER FOR INDIAN DEANS
FEBRUARY 6, 1986

INDIAN DEANS (List attached)

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Dr. Neville Clarke, Director, Texas Agricultural Experiment Station, Texas
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INDIAN DELEGATION

DEANS OF AGRICULTURAL COLLEGES

- Dr. Maharaj Singh, Deputy Director General (Education), Indian Council for Agricultural Research (ICAR), is the leader of the delegation of Indian deans.
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- Dr. T. S. Khuspe, Director of Extension Education, Mahatma Phule Krishi Viskva Vidyalaya Rahuri.
- Dr. B. S. Malik, Dean, Faculty of Veterinary Health, Jawaharlal Nehru Krishi Vishva Vidyalaya, Jabalpur.
- Dr. Harihar Nath Mehrotra, Dean, College of Agriculture, and Head of the Plant Breeding and Genetics Department, Mohan Lal Sukhadia University, Udaipur.
- Dr. Anirudha Misra, Dean, College of Agriculture, Orissa University of Agriculture and Technology, Bhubaneshwar.
- Dr. P. Pushpama, Dean, Faculty of Home Science, Andhra Pradesh Agricultural University, Hyderabad.
- Dr. H. P. C. Shetty, Dean, College of Fisheries, University of Agricultural Sciences, Bangalore.
- Dr. S. R. Verma, Dean, College of Agricultural Engineering, Punjab Agricultural University, Ludhiana.



UNITED STATES AGENCY for INTERNATIONAL DEVELOPMENT

NEW DELHI, INDIA

February 27, 1986

Dr. Maharaj Singh
Deputy Director General (Education)
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Dear Dr. Singh:

Transmitted herewith is a draft copy of report covering the visit of you and the Indian Deans of Agriculture to U.S. This draft report was put together in Washington by Winrock International with the assistance of Dr. John Dunbar. The services of Winrock and Dr. Dunbar had been contracted by USAID to help provide logistic support for your visit. This draft report ~~has~~ to be in conformance with requirements of the contract.

It is our intent that the report should be accurate and mutually acceptable in its final form. Therefore, I am seeking your careful review and editing which will be transmitted promptly to Winrock for modification of the draft in preparation of the final report.

Please respond as soon as possible.

Sincerely yours,

Ronald H. Pollock
Chief
Office of Agriculture
and Rural Development

AR/ID:RHPollock:tm

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